

Serial No. 09/988,688

REMARKS

Claims 1-8, 10-13, 15, 17, 18, 20, and 21 are now pending in the present application. The applicants respectfully request reconsideration and allowance of the present application in view of the above amendments and the following remarks.

Claims 1, 2, and 15 stand rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Johnson, U.S. Patent No. 5,430,346. The rejection is respectfully traversed.

With regard to independent claim 1, as amended, the claimed structure is now recited to more clearly distinguish over Johnson by clarifying that the ground electrode extends horizontally from the metal shell and is opposed to one of a tip end of the center electrode and an outer peripheral surface of the center electrode. Claim 1 is further amended to recite that if the ground electrode is opposed to the tip end, it is in axial alignment therewith and if opposed to the outer peripheral surface, it is in lateral alignment therewith. Support for these amendments can be found in Applicants specification, for example, on page 2, line 22 and with reference to figures 2(a)-2(c) and 12(a) and 12(c).

Applicants vigorously contend that Johnson fails to disclose a structure as claimed. It is important to note that in reciting the features in claim 1, reference is clearly made to a ground electrode *extending horizontally from said metal shell* and opposed to one of a tip end and an outer peripheral surface of said center electrode *to define a spark gap*. A close review of Johnson fails to produce a description or illustration of a ground electrode extending horizontally from a metal shell. All figures are directed toward a ground electrode which is vertically spaced using posts 38. Moreover, the cited section of Johnson, e.g. col 4, lines 42-50 fail to disclose anything regarding the configuration of the ground electrode and the center electrode.

Serial No. 09/988,688

Even a cursory review of Johnson reveals an annular or ring shaped ground electrode with an inner diameter equal to or preferably greater than the diameter of the center electrode (see, e.g. col 2, line 27). Such a configuration creates a physical impossibility of the ground electrode being opposed to one of a tip end in axial alignment therewith and an outer peripheral surface in lateral alignment.

At best, as is clearly shown, for example, in Fig. 26 of Johnson, an outer peripheral surface (bottom surface 58) of a center electrode opposes a post 38 and thus does not oppose, in the manner claimed, a ground electrode, does not define a spark gap, and is not in lateral alignment therewith. In the Examiner's remarks col 2, line 42-50 is noted as describing that the ground electrode and the center electrode are opposed and that the cited section amounts to a teaching of the claimed ground electrode extending horizontally and opposed to the outer peripheral surface of the center electrode. Applicants note that in any spark plug some opposition would be required to generate a spark, however, applicants recites specific features in connection with the ground electrode opposed to the center electrode as claimed.

Accordingly a *prima facie* case of anticipation has not been established and cannot be sustained in that Johnson fails to identically disclose all the features in the manner claimed as required. It is respectfully requested therefore that the rejection of independent claim 1 be reconsidered and withdrawn.

Claims 2 and 15, by virtue of depending from claim 1, are believed allowable for at least the reasons set forth hereinabove with regard to claim 1. It is respectfully requested that the rejection of claims 2 and 15 be reconsidered and withdrawn.

Claim 3 stands rejected under 35 U.S.C. 103 (a) as being allegedly unpatentable over Johnson. By virtue of depending from claim 1, claim 3 is allowable for at least the reasons set forth herein above. The rejection of claim 3 should therefore be withdrawn.

Serial No. 09/988,688

Claims 4, 5, 11, and 12 stand rejected under 35 U.S.C. 103 (a) as being allegedly unpatentable over Johnson in view of Takafumi et al JP 63-266046. The rejection is respectfully traversed.

By virtue of depending from claim 1, claims 4, 5, 11, and 12 are allowable for at least the reasons set forth herein above. The rejection of claims 4, 5, 11, and 12 should therefore be withdrawn.

Claims 7, 8, 10, 13, 18, 20, and 21 stand rejected under 35 U.S.C. 103 (a) as being allegedly unpatentable over Johnson in view of Franks U.S. Patent No. 3,958,144. By virtue of depending from claim 1, claims 7, 8, 10, 13, 18, 20, and 21 are allowable for at least the reasons set forth herein above. The rejection of claims 7, 8, 10, 13, 18, 20, and 21 should therefore be withdrawn.

Claims 1 and 6 stand rejected under 35 U.S.C. 103 (a) as being allegedly unpatentable over Pfeil, U.S. Patent No. 2,406,966 in view of Johnson. The rejection is respectfully traversed.

With regard to claim 1, as amended as noted above, the claimed structure is not recited in Pfeil and thus in the applied art combination. In particular, Pfeil, as admitted by the Examiner, and thus the applied art combination fail to teach or suggest, for example, laser spot welding of the ground electrode.

Johnson, and thus the applied art combination, fails to teach or suggest the structure of claim 1, as amended, for the reasons set forth herein above. At best, the spark plug of Johnson has an annular or C-shaped ground electrode in the proximity of the center electrode. The ground electrode of Johnson can be attached with a mounting ring 44 and mounting posts 38, with laser welding being described as an alternative to the use of mounting ring 44 for attaching posts 38 to a housing and not the ground electrode as claimed. Johnson is silent about the advantage of laser welding and merely lists laser welding in addition to other welding methods

Serial No. 09/988,688

as a substitute to mounting ring 44 as noted. Johnson and thus the applied art combination can be distinguished from the claimed invention in that the ground electrode of Johnson is coupled to a mounting ring through posts. While the ground electrode in Johnson opposes the center electrode in some fashion, the word "opposed" associated with the specific claimed features cannot be read in isolation. Johnson, for the very reasons stated by the Examiner, e.g. that the ground electrode is supported by posts, precludes the ground electrode extending horizontally as claimed, precludes the ground electrode being connected to the metal shell through a laser fused weld as claimed, and precludes the ground electrode opposing an outer peripheral surface of the center electrode in later alignment therewith to define a spark gap. Johnson teaches away from lateral alignment of the ground electrode and center electrode in col 1, line 49. In Johnson, the mounting ring, or at best the posts and not the ground electrode are connected to the metal shell and since Johnson does not teach a spark gap defined between the mounting posts 38 and the outer peripheral surface of the center electrode as described above, then Johnson necessarily fails to teach or suggest the claimed features.

Applicants vigorously contend that the combination of Pfeil and Johnson is improperly motivated in that the Examiner has provided no evidence to show that one of ordinary skill in the art would have been motivated to combine Pfeil with Johnson since Pfeil is clearly the kind of conventional prior art spark plug which Johnson improves upon. The Examiner has failed to provide evidence of a suggestion or motivation, contained in the references, to combine the teachings of Johnson and Pfeil besides the purported advantages drawn from the Examiner's personal knowledge. In the Examiner's comments, it is asserted that the motivation for laser welding is within the knowledge generally available to one of ordinary skill in the art. Unfortunately, proper motivation for a combination must be found within the teachings of the references and cannot simply be ascribed to knowledge generally available. If the Examiner is

Serial No. 09/988,688

using the knowledge generally available to one of skill in the art as a standard to motivate the combination of the applied references, not only has the evidentiary burden not been met, there is a presumption that the applicants' disclosure has been improperly used as a roadmap to facilitate a piecemeal application of the teachings of the prior art and has thus been improperly used to support improper hindsight reconstruction of the prior art to arrive at the claimed invention. Moreover, if the knowledge was generally available to one of skill in the art, applicants wonder why Pfeil is deficient in teaching laser fused welding as claimed.

As noted however, even if the art combination is properly motivated, which applicants again vigorously contend it is not, it still fails to teach or suggest all the features of the claimed invention as required. Accordingly a *prima facie* case of obviousness has not been established in that the applied art combination is improperly motivated and nevertheless still fails to teach or suggest all the claimed features as required. It is respectfully requested therefore that the rejection of claim 1 be reconsidered and withdrawn.

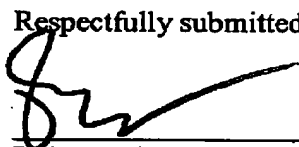
Claim 6, by virtue of depending from claim 1, is believed allowable for at least the reasons set forth hereinabove with regard to claim 1. It is respectfully requested that the rejection of claim 6 be reconsidered and withdrawn.

Serial No. 09/988,688

In view of the foregoing, the applicants respectfully submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Please charge any unforeseen fees that may be due to Deposit Account No. 50-1147.

Respectfully submitted,



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